WHIRRAKEE

August 2004 Vol. 25 No. 7

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MONTHLY NEWSLETTER OF THE BENDIGO FIELD NATURALISTS CLUB

Bendigo Field Naturalists Club Inc.
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Membership of the Bendigo Field Naturalists Club is open to all those interested in Natural History. The subscription rates are: Single $34; Family $40; Concession: Single $28.50; Family $34. *Whirrakee* subscription only is $34.

General meetings are held on the second Wednesday of each month. The venue for General meetings is the Golden Square Senior Citizens Building, Old High Street, Golden Square. The invited speaker at general meetings starts at 8:00pm and meetings conclude with supper.
If a workshop is held prior to the meeting, it will be advertised and it usually starts at 7.00pm.
The Annual Meeting is held in September.

Committee meetings are held on the third Wednesday of each month at 7:30pm. Members of the Committee are the Office Bearer listed above and the following members: Rob Moors (ex officio), Lyn Hamilton, Maurie Lewis, Glenise Moors, Bob Ruddick, and there are 4 vacancies.

Excursions Excursions are conducted irregularly and are advertised on the diary page of the *Whirrakee*. The assembly point for excursions is the Golden Square Senior Citizens Building, unless otherwise specified. In addition to local excursions, campouts are held several times each year, usually coinciding with long weekends or holiday periods.

The Bendigo Field Naturalists Club has one active group that meets regularly (the Fauna Study Group) and other groups that meet at irregular intervals.

Fauna Study Group: meets on the fourth Wednesday of the month at 7:30pm in the Golden Square Senior Citizens Building.
Chairman: John Burtonclay, Fadersons Lane, Mandurang (5439 5710)
Secretary: Bill Holsworth, 13 Nabilla Crs., Bendigo (5443 4063)
Equipment Officer: Maurie Lewis (0407 427179)

Bird Observers Group: This group has field excursions and the occasional lecture evening. Please consult the *Whirrakee* for details. Special bird observations should be reported to Anne Bridley 5449 3479.
To propose meetings or excursions please contact Kerrie Norris 5447 8017.

Front Cover
Photographer: Clive Fisher
Lightwood, *Acacia implexa* is also called Hickory Wattle. This is a widespread wattle in eastern Australia but does not grow in Bendigo itself. However, it occurs slightly further south, e.g. Sutton Grange, where it is common along roadsides. Does anyone know why it is called Lightwood? According to Marion Simmons (Vol.1 Acacias of Australia), the timber is similar to that of Blackwood (Acacia melanoxylon).

WHIRRAKEE

Monthly Newsletter of the Bendigo Field Naturalist Club

Vol. 25, No.7, August 2004.

Whirrakee takes its name from the Whirrakee Wattle (*Acacia williamsonii*) which is virtually endemic to the Bendigo region

CONTENT

Item	Contributor	Page
News from the Club Garden	Matthew Comer	3
South East Australian Naturalists Association Spring Camp - Little Desert - 29/10-2/11 2004	SEANA	3
Monitoring the Use of the Slaty Creek Wildlife Underpass, Calder Freeway,Black Forest, Macedon	Ruth Lawrence/Rod Absom	4
From the Mailbag	Elaine Mathison	10

Authors are responsible for the accuracy of the information they use and also for any opinions expressed in their articles.
Contributions will be included as soon as possible after they are received, although articles received more than one week after the monthly General Meeting will probably be too late for inclusion in the next issue of *Whirrakee*.
Articles in *Whirrakee* may be reproduced, but permission should be obtained from the Bendigo Field Naturalists Club, and acknowledgment should be given to the author and the Club. Some back issues are still available on request.

Editor's note
Another lot of apologies to those wonderful people who have sent me articles for the Whirrakee. I thought that after the July general meeting it was important to print the whole of Rod Absom and Ruth Lawrence's published article on the wildlife underpass but this meant that other contributions were displaced to the next issue. The club has been quite involved in this study and it is only the fourth published study in Australia of the use (usefulness) of such an underpass.
A few other small articles reminding readers about various activities also missed out. For example, please remember the AGM next month. Nomination forms and subscription reminders were sent out in last month's edition. Also, BFNC is once again involved in the 'Spring in the Bendigo Bush' program. The wildflower show is always a popular event and it needs lots of helpers. If you can contribute on the day, please ring Bill Holsworth, Jane Cleary or Matthew Comer (telephone numbers on inside front cover).
Some members of the club have been heavily involved in the submissions to the the panel hearing of Bendigo Mining's application to expand their operations. A very big thank you to those members for their effort on behalf of the club. Some of the submissions will be printed in the Whirrakee in the next few months.
The last thank you goes to Rod Orr who finalised the speaker syllabus for the rest of the year's general meetings, but again, there was no room for it in this issue. Please note on the back cover that this month's speaker is different from what was originally advertised.

News from the Club Garden

by Matthew Comer

On Saturday the 10th of July, six club members gathered to carry out some maintenance of the garden. The main tasks were some selective weeding, trimming and tidying of litter etc. As well carting and spreading some mulch. The mulch was provided through Anthony Sheean from the City of Greater Bendigo, who also arranged selective spraying of some weedy areas with herbicide. Hopefully, this will reduce the amount of hand weeding later on.

The addition of the new mulch was pleasing to the eye, but the real highlight of the garden was the bright winter flowering wattles, the Woolly wattle (*Acacia lanigera*), Bent leaf wattle (*Acacia flexifolia*) and Spreading wattle (*Acacia genistifolia*). I showed some samples of these at the July general meeting for those who only see the garden in darkness at this time of year. It really is worth visiting the garden during daylight hours.

Many of the herbaceous perennial plants such as grasses, daisies etc were sprouting new growth in preparation for their spring flowering and the tuberous plants such as chocolate lilies have re-sprouted again. As well, there are many new seedlings appearing again, as in previous years, of certain species.

It was suggested at the working bee that the high profile area near the hall entrance needed some selective planting to add more colour and interest. Some plants have since been obtained and planted in this area, with the aim of getting them in quickly so they have as much time as possible to establish before the dry months arrive.

The plants chosen were mostly small colourful species such as everlastings. They include the following species:

Acacia lanigera	Woolly Wattle
Acacia williamsonii	Whirrakee Wattle
Billardiera cymosa	Sweet Apple Berry
Brachyscome dentata	Lobe Seed Daisy
Cassinia uncata	Sticky Cassinia
Chrysocephalum semipapposum	Clustered Everlasting
Cryptandra amara	Bitter Cryptandra
Dampiera dysantha	Shrubby Dampiera
Philotheca verrucosa	Bendigo Waxflower
Podolepis jaceioides	Showy Podolepis
Ptilotus macrocephalus	Green Pussytails
Pultenaea pedunculata	Matted Bush Pea
Xerochrysum viscosum	Sticky Everlasting

We are planning to obtain some more mulch to finish off some areas and will need to have another working bee to spread it. We will do this on Saturday 7th August at 9am and everyone is welcome to come along.

South East Australian Naturalists' Association Spring Camp
Friday 29 Oct - Tuesday 2 Nov 2004

Little Desert Nature Lodge

South East Australian Naturalists' Association invites you to the South East Australian Naturalists' Association Spring Camp based at Little Desert Nature Lodge. Little Desert Nature Lodge is 16km south of Nihill on the Nihill-Harrow Road (Vicroads 25 C9).

The Little Desert National Park has a rainfall range of 400mm per year in the north-east to 600mm in the south-west. The variation in soil types causes marked differences in vegetation. It is a desert in name only - many species of plants and animals have succeeded, on poor soils, with little water, in creating a landscape where survival depends on maintaining a delicate balance of natural forces. In spring the park is full of wildflowers which attract a wide range of birds.
Guest speakers are planned for Saturday and Monday evening.
On Saturday, Sunday and Monday, a variery of excursions are planned to various parts of the Little Desert National Park and conservation reserves in the region. These are led by staff of the Little Desert Nature Lodge, local and visiting naturalists.
Some excursions must be booked (Four-wheel Drive Tour $53, Malleefowl Sanctuary $25, Malleefowl Aviary $5.50. Other excursion (no costs involved) planned include visits to Glenlee Nature Reserve, Snape Reserve, Horseshoe Bend, Mallee Dam Reserve, Elgin Swamp, Tooan

Bookings must be received by 30th August. Registration fee is $20. Please phone Sabine Wilkens (54432797) for a copy of the booking form and details of the accommodation arrangements.
Contact: John Gregurke (53394993).

Monitoring the Use of the Slaty Creek Wildlife Underpass, Calder Freeway, Black Forest, Macedon, Victoria, Australia.

Mr. Rodney N. Abson, Centre for Sustainable Regional Communities
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Introduction

The design of roads to mitigate potential negative effects on animals is a relatively new area of research in Australia. Compared to work done overseas, there are only a few articles published on mitigation structures such as underpasses in Australia (Mansergh & Scotts, 1989; Hunt *et al.*, 1987; Goosem *et al.*, 2001). Given that there is over 800,000 kilometers of roads within Australia (Australian Bureau of Statistics, 2002), there is a great need to develop measures that minimize road impacts on the natural environment. Australia's unique animals and varied environmental conditions require road designs that are effective for both to Australian conditions and wildlife.

The Slaty Creek wildlife underpass (Plate 1) was built by VicRoads (Victorian Government Roads Corporation) in the Black Forest section of the Calder Freeway in 1997 to mitigate the impacts of a new freeway on wildlife passage. This structure was designed primarily to provide access for wildlife moving between the forest blocks that the freeway bisected, by also to allow for creek flows and access for firefighting crews, maintenance vehicles and pedestrians. The Black Forest section of the Calder Freeway cost approximately AUD 46 million, with the Slaty Creek underpass cost approximately AUD 3 million.

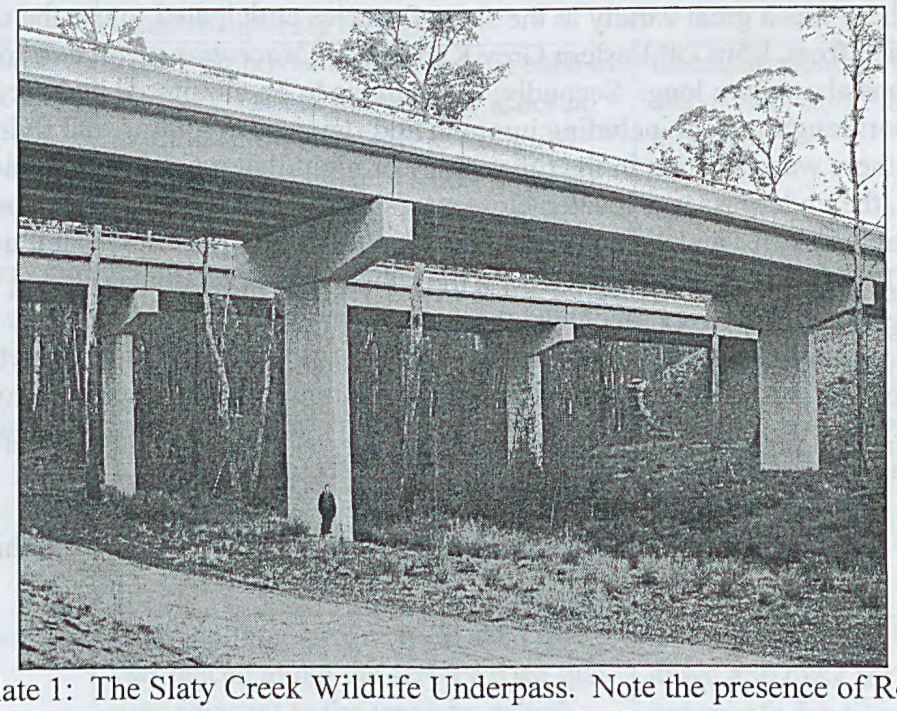


Plate 1: The Slaty Creek Wildlife Underpass. Note the presence of Rod Abson against the bridge pier in the foreground

The Slaty Creek underpass is approximately 70 metres wide at the base and supports a split dual carriageway bridge on two 12-metre piers for each section of carriageway. The distance between the continuous forest patches on either side of the underpass is approximately 100 metres. An important design component of the underpass was the retention of remnant vegetation during the construction of the road and bridges. This enabled some mature Eucalypts and middle and understorey vegetation to be retained within the underpass. Further indigenous species were planted after the completion of construction with the intention of recreating a similar vegetation structure to the adjacent forest.

The Centre for Sustainable Regional Communities, La Trobe University, Bendigo, was contracted by VicRoads for approximately AUD 70,000 to:

- Determine what fauna species were using the Slaty Creek underpass (and adjacent culverts and roads);
- Determine whether the animals were using the underpass during day or night;
- Determine the use of the underpass by potential predators such as domestic and feral animals;
- Include an assessment of suitability of the proportions of the underpass for facilitating fauna movement and suggest possible improvements to the underpass which may optimise its use by native fauna and minimize risk of predation;
- Outline requirements for any future monitoring programs or further investigation if required.

This paper reports on only those species that used the Slaty Creek underpass.

Monitoring sites and methods

This study examined the presence/absence of mammals (including bats), reptiles, amphibians and birds within the underpass and adjacent forest over a 12-month period. The adjacent forest sites measured 50m x 50m in size and were located 320 metres to the west and 100 metres to the east of the underpass along Slaty Creek.

There were four issues that had to be addressed when designing the monitoring regime. Firstly, there was a great variety in the size of species anticipated to use the underpass: sizes varied from 1.5m tall Eastern Grey Kangaroos (*Macropus giganteus)* to amphibians about 3cm long. Secondly; the animals to be monitored had varying modes of transport ranging from including jumping and running, to gliding and flying. Thirdly, there was variation in the time of day or night that the animals would be active. Fourthly, the underpass was located close to residential properties, which posed a considerable risk of vandalism if expensive monitoring equipment was left unattended on site. This factor, in combination with the substantial vegetation covering the underpass floor effectively precluded the use of cameras. Consequently, the monitoring program was both varied and substantial. A total of fourteen monitoring methods were chosen for this study, and a brief outline of the methods and frequency of monitoring is given in Table 1. Between July 2002 and June 2003, Rod Abson spent one week each month camping in the Black Forest and collecting the data.

Table 1: Summary of types and frequency of monitoring methods used in this study

Monitoring method	Description	Frequency
Active Searching	Lifting logs and rocks to find reptiles and amphibians at three sites.	One day every three months
Anabat	An electronic device used to detect and record the echolocation frequencies of bat calls used only in the underpass.	Used shortly after dusk on three nights in three different months.
Audio	A small note taker and directional microphone used to record bird calls during bird surveys, incidental and night frog and bird calls during spotlighting.	Operated during bird surveys and spotlighting each month.
Bird Survey	A 20-minute bird survey conducted at each of the three sites at dusk.	Survey conducted at dusk for three successive days per month for 12 months
Elliott Trap	Seven of these small metal traps were placed on the ground at each of the three sites to catch small mammals.	Checked at dawn and dusk for three successive days each month for 12 months.
Hair Funnel	Tapered half funnels baited at the narrow end and containing a sticky wafer for removal of a small sample of mammal hair when the animal investigates the funnels; five funnels were placed at each of the three sites, two in trees and three on the ground.	Hair funnels were baited and left out for the entire year; the bait and wafer were changed once per month and hair samples were analysed each month for 12 months.
Harp Trap	Five harp traps used for catching bats were placed within the underpass and surrounds.	Used only on one night; not found to be successful and so not used again.
Incidental Observations	Recording of animals that were seen during the time spent in the forest and that did not come under one of the other monitoring methods.	Observations made for one week every month for 12 months.
Nest Boxes	Four nest boxes were placed at each of the three sites to monitor for arboreal mammals; the boxes were designed for Feathertail Glider (1 box per site), Leadbeaters Possum (1 box per site) and Sugar Glider (2 boxes per site).	Checked monthly for signs of use or habitation for 12 months.
Pitfall Trap	Eight pitfall traps of 15 cm diameter, 30 cm depth with a 4 m fence were established at three sites to catch reptiles and amphibians.	Checked at dawn and dusk for three successive days each month for 12 months.
Road Walk	The freeway near the underpass was checked for evidence of animal road kill; both edges of the freeway and the median strip were checked: a length of 2.5 km	One day each month for 12 months
Sand Tray	An 80 m long by 2 m wide sand tray was placed along the service road that runs adjacent to the freeway, which ground dwelling animals needed to	Checked and raked smooth at dawn and dusk for three days per month for 12 months.

	cross to pass through the underpass.	
Scat Collection	At each of the three sites, five randomly placed 1 m^2 plots were checked for any signs of animal scats, bones or hair and collected for analysis.	Conducted once per month for 12 months.
Spotlighting	A high-powered red filter spotlight and nightscope were used at night to check for nocturnal animals. This was conducted at each of the three sites and adjacent forest.	Approximately 1 hour per night for three nights per month for 12 months

Results

There were 116 species of fauna detected within the Black Forest region throughout the duration of the study. Table 2 depicts the species groups of animals detected, along with comparisons between the total number of species detected and the number detected within the underpass compared to the surrounding forest or road. Figure 1 shows the number of species in each group detected at each location. The results suggest that the number of animals detected within the underpass is comparable to species found in the adjacent forest.

Table 2: Species detected during the Slaty Creek underpass fauna survey

Species Group	**Total Number of Species Detected**	**Species Detected in Forest or Road**	**Species Detected in the Underpass**
Amphibians	7	6	6
Bats	12	Not monitored	12
Birds	63	59	37
Introduced medium to large mammals	8	6	6
Koala, Wombat, Echidna	3	3	3
Macropods	2	2	2
Possums & Gliders	7	7	4
Reptiles	8	5	5
Rodents & Dasyurids	5	5	4

However, a close inspection of the study results has identified that some arboreal animals were detected within the surrounding forest, but not within the underpass (Table 2). Based on other underpass studies (Queensland Department of Main Roads, 2000), gliders and possums were not expected to move through underpass structures. Gliders and possums demonstrate a reluctance to come to ground, as their preferred movement is through the canopies of trees. In this study, the possums and glider species detected within both the underpass and adjacent forest included:

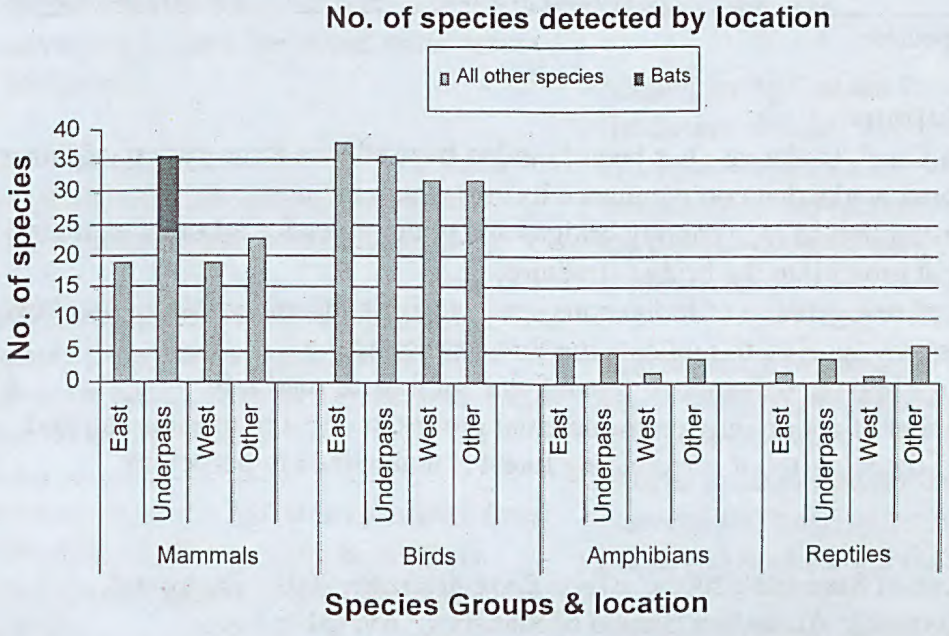
- Sugar Glider (*Petaurus breviceps*);
- Ringtail Glider (*Pseudocheirus peregrinus*);
- Common Brushtail Possum (*Trichosurus vulpecula*); and
- Squirrel Glider (*Petaurus norfolcensis*) (a possible recording).

The species that were detected in the forest but not within the underpass included:

- Feathertail Glider (*Acrobates pygmaeus*);
- Mountain Brushtail Possum (*Trichosurus caninus*); and
- Greater Glider (*Petauroides volans*) (a possible recording).

These results suggest that the design of the underpass with its large dimensions and retained vegetation is suitable for most species to move through, but may require additional features to become attractive to other species such as possums and gliders.

Figure 1: Number of species detected at each location: 'East' = 50m x 50m quadrant 100 east of the underpass; 'Underpass' = within the Slaty Creek underpass; 'West' = 50m x 50m quadrant 320 west of the underpass; 'Other' = other location within a 1.2 km radius of the underpass.



A variety of introduced animals were detected within the underpass and surrounding forest. Introduced animals were detected predominantly using the underpass at night. Although it has been suggested that predators use underpass structures as prey traps, no evidence was found to suggest that was happening at the Slaty Creek underpass. Small native and introduced animals, that would be suitable prey for predators such as foxes, cats and dogs, were regularly detected within the underpass. Table 3 presents data on predator scats collected from within the underpass and surrounding forest, and demonstrates that introduced mammals prey on both native and introduced species. However, it was not possible to determine the exact location of the predation event, as some prey species (cow and sheep) were never physically present in the underpass. This suggests that predators range quite widely for their prey and operate independently of underpass structures for their prey.

Table 3: Predator and prey analysis based on scats collected within the underpass and surrounding Black Forest

Predator		**Prey**	
Common Name	**Scientific Name**	**Common Name**	**Scientific Name**
*Cat	*Felis catus*	Ringtail Possum	*Pseudocheirus peregrinus*
*Dog	*Canis lupus familiaris*	Ringtail Possum	*Pseudocheirus peregrinus*
		*Sheep	*Ovis aries*
*Fox	*Vulpes vulpes*	*Black Rat	*Rattus rattus*
		Bird sp.	
		*Cow	*Bos taurus*
		Mountain Brushtail Possum	*Trichosurus caninus*
		Ringtail Possum	*Pseudocheirus peregrinus*
		Swamp Wallaby	*Wallabia bicolor*

* Introduced species

Recommendations

Whilst the Slaty Creek Underpass has been found to be used by a large variety of fauna, there are still some works that could enhance its use, which include:

- The construction of rope canopy bridges and glider poles for arboreal animals;
- Fitting bat roosts into the bridge structure;
- Additional revegetation of indigenous species within the underpass, particularly middle storey species, to replicate the forest structure;
- The design and maintenance of fencing that minimises road kill;
- Involvement of community environmental groups in ongoing monitoring; and
- Ensuring the integrity of surrounding forest is maintained in perpetuity.

References

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From the Mailbag
Author: Elaine Mathison

Each month the club receives a number of newsletters and magazines: some by subscription and some in exchange for Whirrakee. These are available from the club library.

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THE BIRD OBSERVER(BOCA)
June 2004

- The Birds of Melbourne: an attempt to break the one day record of bird observations in the suburbs and outer areas of Melbourne.

- Birdwatching at Lord Howe Island: some tips for visitors, including a bird list and suitable locations for observations.

- Birds of the past in the Geelong District: excerpts from a book published in 1914, with some birds still known in the area, and some no longer present.

- House Sparrows: a selection of articles from a forum held in the northern hemisphere where sparrow numbers have declined markedly.

- The Townsville Palmetum: a valuable birdwatching site in the centre of the town, often overlooked by locals and visitors.

- Hybrids: discussion of possible/definite hybrid examples of Australian Ringnecks, Pigeons, and Sulphur-crested Cockatoo/Little Corella.

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PARKWATCH(VNPA)
June 2004

"Why we need www.onebigpark.com" discusses the main obstacles which prevent lasting protection for the whole of the Australian Alps ie the various state and territory borders that cross the area.

"The battle for water in the west" explains the water issues facing the Wimmera River that impact on Wyperfeld National Park. Up to 40% of the Wimmera-Mallee storage system is committed to users or lost to evaporation and seepage each year.

"Cape Liptrap Coastal Park" describes a "landscape delight" full of interest and diversity. With many coastal areas under pressure from development and recreation, how fortunate we are that more than a third of Victoria's coastline is protected.

"Tarra-Bulga National Park: celebrating 100 years" outlines the history of one of Victoria's oldest national parks. The Bulga section was created in 1904, and the Tarra Valley was reserved for "road purposes and the preservation of natural features" in 1909.

"Snowy Bluff and the Moroka Valley" reports on a walk to this remote valley in the Alpine National Park.

* * * * * * *

Also received recently:

Castlemaine Naturalist(CFNC)

Ballarat Naturalist(BFNC)

Geelong Naturalist(GFNC)

Sun-Nat(Sunraysia FNC)

Field Nats News(FNCV)

Newsletter(Echuca & District Bird Observers)

* * * * * * *

Diary

The General, Bird Observers Group and Fauna Study Group meetings are held at the Golden Square Senior Citizens Building, Old High Street, Golden Square, unless otherwise indicated.

General Meetings

Wednesday, August 11 7.30pm
Deanna Marshall is the senior flora officer in the Biodiversity group. She will present where DSE is at in terms of funding for all our nationally threatened flora. She will also outline which species the Flora Group is working on and who is working on what. All project officers will come along on the night so that club members can become familiar with the team which will make our collaboration in some of the state threatened species projects that much easier.

Bird Observers Group Excursions

Sun 3rd October
WHIPSTICK/KAMAROOKA AREA

Meet 8.30 Cnr. Napier St (Midland Hwy) and Howard St (Northern side) Epsom.
Contact- Pam + John Land, ph. 5436 1511

Note: The Whipstick- Kamarooka area is noted for the number and diversity of bird species which might be recorded at any time of year. This most southern patch of mallee forest provides the overlap between the extent of range that many northern and or southern species of birds may venture.
On a good morning (winter) it is not uncommon to record up to 50 species of birds, including at least 13 different species of honeyeaters.
Bring: Suitable clothing and footwear for weather conditions, morning tea drink and snack, lunch optional.
Car-pooling: Can be organized at the meeting point
Beginners to birding most welcome.

Fauna Group

This group meets (in the clubrooms) on the fourth Wednesday of the month at 7.30pm.

Wednesday, August 25 7.30pm
Topic for discussion to be advised.

Fauna Group Project
FROG POND HABITAT RESTORATION at Kangaroo Flat Botanical Garden

The *ornamental pond* in the Kangaroo Flat Botanical Garden has been created by the damming of Kangaroo Gully Creek as it flows north towards Bendigo Creek. Throughout the current drought period, the pond has remained a permanent waterhole in the creek system providing habitat and refuge for a variety of fauna such as, insects, frogs, turtles, water and bush birds.

With funds from a City of Greater Bendigo Environmental Grant the Fauna Group aim to enhance the habitat in and around the pond to support this already actively utilized resource. Members have met with and been given valuable advice by Dr. Kirston Parris, an expert in Urban Ecology and Research. The intoduction of natural obstacles such and rocks and logs will provide protection for breeding sites and from predators. City Parks staff are very supportive of the project and assisting with sourcing and emplacement of materials, such as rocks and logs before the introduction of aquatic plants and further plantings along the edge of the pond.

Proposed Planting Session - Saturday 14th August (pending emplacement of heavy habitat). Start 10am. All welcome
Kangaroo Flat Botanical Garden, Camp Street
K.F. Contact: Kerrie 5447 8017)

BFNC Garden Working Bee

This year we need regular garden working bees and they are usually held on the Saturday before each general meeting, at 9am. With the recent rains maintenance require-ments have increased and weeds will start to grow despite the cold.
We also need to spread our new mulch.
Therefore:

The next working bee will be on **Saturday 7th August, 9am**

All welcome